

Appendix to Agricultural Land Conservation as An Important Part of California's Climate Strategy

TABLE 1

Calculation of Statewide Greenhouse Gas Emissions Avoided by Reducing Agricultural Land Conversion by 50% by 2030 and 75% by 2050

| Year | Projected Acres Converted Current Trend | Goal for Acres Converted in Year X * | Acres Avoided Conversion in Year X | Cumulative Acres Avoided Conversion | | | Statewide GHG Avoided in Year X (t CO2e) | | |
|------------|---|--------------------------------------|------------------------------------|-------------------------------------|------------|-------------|--|----------------|-------------|
| | | | | Total | Cropland # | Rangeland # | From Cropland | From Rangeland | Total |
| 2015 | 41,700 | 41,700 | 0 | | | | | | |
| 2016 | 41,700 | 40,310 | 1,390 | 1,390 | 1,029 | 361 | 34,191 | 12,110 | 46,301 |
| 2017 | 41,700 | 38,920 | 2,780 | 4,170 | 3,086 | 1,084 | 102,572 | 36,330 | 138,902 |
| 2018 | 41,700 | 37,530 | 4,170 | 8,340 | 6,172 | 2,168 | 205,144 | 72,660 | 277,804 |
| 2019 | 41,700 | 36,140 | 5,560 | 13,900 | 10,286 | 3,614 | 341,907 | 121,099 | 463,007 |
| 2020 | 41,700 | 34,750 | 6,950 | 20,850 | 15,429 | 5,421 | 512,861 | 181,649 | 694,510 |
| 2021 | 41,700 | 33,360 | 8,340 | 29,190 | 21,601 | 7,589 | 718,005 | 254,309 | 972,314 |
| 2022 | 41,700 | 31,970 | 9,730 | 38,920 | 28,801 | 10,119 | 957,340 | 339,078 | 1,296,418 |
| 2023 | 41,700 | 30,580 | 11,120 | 50,040 | 37,030 | 13,010 | 1,230,866 | 435,958 | 1,666,824 |
| 2024 | 41,700 | 29,190 | 12,510 | 62,550 | 46,287 | 16,263 | 1,538,582 | 544,947 | 2,083,529 |
| 2025 | 41,700 | 27,800 | 13,900 | 76,450 | 56,573 | 19,877 | 1,880,489 | 666,047 | 2,546,536 |
| 2026 | 41,700 | 26,410 | 15,290 | 91,740 | 67,888 | 23,852 | 2,256,587 | 799,256 | 3,055,843 |
| 2027 | 41,700 | 25,020 | 16,680 | 108,420 | 80,231 | 28,189 | 2,666,875 | 944,576 | 3,611,451 |
| 2028 | 41,700 | 23,630 | 18,070 | 126,490 | 93,603 | 32,887 | 3,111,355 | 1,102,005 | 4,213,360 |
| 2029 | 41,700 | 22,240 | 19,460 | 145,950 | 108,003 | 37,947 | 3,590,025 | 1,271,544 | 4,861,569 |
| 2030 | 41,700 | 20,850 | 20,850 | 166,800 | 123,432 | 43,368 | 4,102,885 | 1,453,193 | 5,556,079 |
| 2031 | 41,700 | 20,329 | 21,371 | 188,171 | 139,247 | 48,925 | 4,628,568 | 1,639,384 | 6,267,951 |
| 2032 | 41,700 | 19,808 | 21,893 | 210,064 | 155,447 | 54,617 | 5,167,071 | 1,830,115 | 6,997,186 |
| 2033 | 41,700 | 19,286 | 22,414 | 232,478 | 172,033 | 60,444 | 5,718,396 | 2,025,388 | 7,743,784 |
| 2034 | 41,700 | 18,765 | 22,935 | 255,413 | 189,005 | 66,407 | 6,282,543 | 2,225,202 | 8,507,745 |
| 2035 | 41,700 | 18,244 | 23,456 | 278,869 | 206,363 | 72,506 | 6,859,511 | 2,429,557 | 9,289,069 |
| 2036 | 41,700 | 17,723 | 23,978 | 302,846 | 224,106 | 78,740 | 7,449,301 | 2,638,454 | 10,087,755 |
| 2037 | 41,700 | 17,201 | 24,499 | 327,345 | 242,235 | 85,110 | 8,051,913 | 2,851,892 | 10,903,804 |
| 2038 | 41,700 | 16,680 | 25,020 | 352,365 | 260,750 | 91,615 | 8,667,345 | 3,069,871 | 11,737,216 |
| 2039 | 41,700 | 16,159 | 25,541 | 377,906 | 279,651 | 98,256 | 9,295,600 | 3,292,391 | 12,587,990 |
| 2040 | 41,700 | 15,638 | 26,063 | 403,969 | 298,937 | 105,032 | 9,936,675 | 3,519,452 | 13,456,128 |
| 2041 | 41,700 | 15,116 | 26,584 | 430,553 | 318,609 | 111,944 | 10,590,573 | 3,751,055 | 14,341,628 |
| 2042 | 41,700 | 14,595 | 27,105 | 457,658 | 338,667 | 118,991 | 11,257,292 | 3,987,199 | 15,244,490 |
| 2043 | 41,700 | 14,074 | 27,626 | 485,284 | 359,110 | 126,174 | 11,936,832 | 4,227,884 | 16,164,716 |
| 2044 | 41,700 | 13,553 | 28,148 | 513,431 | 379,939 | 133,492 | 12,629,194 | 4,473,110 | 17,102,304 |
| 2045 | 41,700 | 13,031 | 28,669 | 542,100 | 401,154 | 140,946 | 13,334,377 | 4,722,878 | 18,057,255 |
| 2046 | 41,700 | 12,510 | 29,190 | 571,290 | 422,755 | 148,535 | 14,052,382 | 4,977,187 | 19,029,569 |
| 2047 | 41,700 | 11,989 | 29,711 | 601,001 | 444,741 | 156,260 | 14,783,209 | 5,236,037 | 20,019,245 |
| 2048 | 41,700 | 11,468 | 30,233 | 631,234 | 467,113 | 164,121 | 15,526,857 | 5,499,428 | 21,026,285 |
| 2049 | 41,700 | 10,946 | 30,754 | 661,988 | 489,871 | 172,117 | 16,283,326 | 5,767,360 | 22,050,687 |
| 2050 | 41,700 | 10,425 | 31,275 | 693,263 | 513,014 | 180,248 | 17,052,617 | 6,039,834 | 23,092,451 |
| | | | | | | | | | |
| Cum Totals | 1,459,500 | 766,238 | 693,263 | 9,462,425 | 7,002,195 | 2,460,231 | 232,753,268 | 82,438,437 | 315,191,705 |

* Assumes annual rate of conversion reduced by 50% by 2030 and by 75% by 2050. Baseline is 41,700 annual average 1984-2010. See Table 4.

Assumes historic average ratio (74/26) of cropland to rangeland conversion 1984-2010 (FMMP)

Assumes a net savings of 55% of the difference between agricultural and urban emissions as a result of concentrating population on fewer acres.

Urban and agricultural emissions from Jackson (2012) See Table 2. Percentage determined by using RapidFire model of Calthrope Analytics based on a land use mix of 10% urban infill and 90% compact urban-suburban as an alternative to development at the average statewide urban-suburban density. See Table 3.